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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/412,099

Filing Date: October 04, 1999

Appellant(s): HOSAIN ET AL.

MAILED

JUL 01 2004

Technology Center 2600

Dan C. Hu
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/16/04.

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(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-3, 5-8, 16-22, and 24-39 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) ClaimsAppealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

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6,377,982	RAI et al.	Apr. 23, 2002
5,740,361	Brown	Apr. 14, 1998

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-8, 16-19, 21, 22, 24-31, and 34-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Rai et al (US006377982B1).

With respect to claim 1, Rai et al disclose a method of accounting for services provided over a packet-based network including determining a type of service (internet service or wireless service) used over the network (see column 36 and line 45-51); monitoring usage of the service (see column 36 and line 52-67); collecting accounting information based on the type of service and usage of the service (see column 2 line 56 – column 3 line 5, figure 22, and column 31, line 47-column 35, line 64), where in collecting the accounting information includes compiling the accounting information, user name, service type, etc. into an accounting unit, wherein the accounting unit has a first entry to indicate a quality of service (see column 18 and lines 60-62) provided over the packet-based network, and a second entry to indicate mobility management (see column 2 and lines 36-40, column 19 and lines 50-64).

With respect to claim 2, Rai et al further disclose transmitting the collected accounting information the at least another entity where the user is roaming (See column 26 and line 6-20).

With respect to claim 3, Rai et al further disclose an identifier (shared secret) with collected accounting information that is common between the first entity and the at least one other entity (see column 35-42).

With respect to claim 5, Rai et al further disclose an accounting unit having a common format for convenient exchange between entities (see column 28 and line 26-37).

With respect to claim 6, Rai et al further disclose an accounting unit including a traffic matrix segment (see column 29 and 30, numbered list only)

With respect to claim 7, Rai et al further disclose determining the type of service includes determining one of a plurality of service types, wherein collecting the accounting information comprises collecting and additional entry assigned a value to indicated a type of service (see column 38 and line 15-40, column 29 and line 5).

With respect to claim 8, Rai et al further disclose determining one of the plurality of service types include determining one of real-time communication at least another type of service, another wireless provider in different location (See column 16, and line 4-20).

With respect to claim 16, Rai et al disclose a method of accounting for services provided over a packet-based network, including communicating units of accounting information carrying information regarding usage of the packet-based network, the unit of accounting information having a predetermined format capable of being exchanged between a plurality of entities; and assigning values to entries in each unit of accounting information based on usage, the unit including an entry indicating a quality of service provided over the a packet-based network and a

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entry containing a network access identifier of the terminal to uniquely identify the terminal (see column 18 and lines 60-62, column 29 and 30, numbered list only).

With respect to claim 17, Rai et al further disclose information also includes other parameters like type of service (see column 29 and line 5).

With respect to claim 18, Rai et al further disclose assigning values to entries further includes assigning values to additional entries including entries indicating usage of a radio interface, indicating usage of a visited network, indicating usage of mobile management, an dedicating an amount of data transferred (see column 9 and lines 1-45, column 42 and lines 1-19, column 22 and lines 26-31).

With respect to claim 19, Rai et al further disclose assigning values to entries further includes assigning a value to an additional entry indicating erroneous termination of communication (see column 22 and line 33-39).

With respect to claims 21, 27, and 29, Rai et al disclose a system capable of being couple to a packet-based network including a controller to collect usage information based on a service used by a node on the packet-based network (see column 2 and lines 56-67); a storage device containing an accounting unit in which the usage information is collected, the accounting unit including a plurality of entries to identify usage element from which accounting may be derived. (see figure 2, items 48, and column 6 and lines 34-55); the accounting unit has a first entry to indicate a quality of service (see column 18 and lines 60-62) provided over the packet-based network, and a second entry to indicate mobility management (see column 2 and lines 36-40). .

With respect to claim 22, Rai et al further disclose the entries of the accounting unit include an entry identifying a type of serviced used (see column 38 and line 15-40).

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With respect to claim 24 and 25, Rai et al further disclose the entries of the accounting unit include entries indicating elements used by a mobility management, usage of a visited network, a traffic segment (see column 41, line 66-67, column 42 and line 1-19, column 9 and lines 1-45, column 29 and 30, numbered list only).

With respect to claim 26, Rai et al further disclose the accounting unit is according to a predetermined format the system further including a unit to communicate the accounting unit to another entity (see column 28 and line 26-37).

With respect to claim 28, Rai et al further disclose the accounting processor is adapted to generated billing to a subscriber base on one or more of the accounting units (see column 28 and lines 9-20).

With respect to claim 30, Rai et al further disclose the one or more storage media contain instructions that when executed causes the system to further communicate the accounting units to another entity (see column 26 and line 6-20, column 28 and line 26-37).

With respect to claim 31, Rai et al disclose a data network with an accounting system including at least two entities (home network and foreign network), the data with on or more code segments (see column 29 and 30, numbered list only) for services used on a packet based data network, the instructions when executed causing a system to receive accounting units from at least another entity; determine, from each accounting unit, usage of a service on the packet based network; and charging at least a subscriber for the usage of the service (see column 2 and lines 56-67), the accounting unit has a first entry to indicate a quality of service (see column 18 and lines 60-62) provided over the packet-based network, and a second entry to indicate mobility management (see column 2 and lines 36-40). .

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With respect to claim 34, Rai further discloses assigning a value to the additional entry comprises assigning one of plural values corresponding to plural types of service (see column 29 and lines 5-7).

With respect to claim 35, Rai further discloses the service comprise real time communication and at least another type of service (see column 16 and lines 4-15).

With respect to claim 36-38, Rai further discloses communicating the unit of accounting information comprises communicating a traffic matrix segment having a header and plural rows, each row containing information associated with a session having a given time duration; assigning values to entries further includes assigning values to additional entries containing source and destination network address and monitoring usage of services on the packet-based network with an accounting meter, wherein assigning values to the entries is performed by the accounting meter (see column 41, line 66-67, column 42 and line 1-19, column 9 and lines 1-45, column 29 and 30).

With respect to claim 39, Rai further discloses the usage elements comprise quality of service, usage of air interface, and a network access identifier (see column 22 and lines 26-32).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 32, 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rai et al (US006377982B1) in view of Brown (US005740361A).

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With respect to claim 32 and 33, Rai et al disclose the data structure includes a plurality of entries, the entries including a type of service, a field including an identifier identifying a node using the service, a field indicating if mobility management is provided for the node, a field indicating usage of a radio interface by the node, and a field indicating usage of a visited network by the node (see column 9 and lines 1-45; column 41, line 66-67 and column 42, line 1-19).

Rai et al do not disclose determining a metering class of the service that indicates if the service is chargeable.

Brown discloses determining a metering class of the service that indicates if the service is chargeable (see column 13, line 56 –column 14, line 9 and column 16, line 22-54). It would have been obvious to one of ordinary skill in the art at the invention was made to combine the teaching of Brown with Rai et al such that information in the information field permits the service to distinguish whether the service is chargeable (see column 13 and line 56-65).

Allowable Subject Matter

5. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art of record doesn't teach the limitation of claim 20.

(11) Response to Argument

Before getting into the detail argument, with the best understanding of appellant's invention from the specification and Rai reference, the examiner would like to define a few critical phrases within the claim 1 from the appellant and examiner's perspective.

First, *accounting unit*, according to appellant's remark in appeal brief, concisely means collection of information that is related to the billing information of a subscriber or customer. A

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simpler way of definition is just accounting information in which it is in a form of “01” binary data within the data stream exchanging among the complex data network. The examiner complete agrees with the definition of accounting unit since this “accounting unit” itself, is just data that has not physical meaning without a supporting physical infrastructure, such as accounting system. Such accounting system, which is coupled in a data network, includes a foreign network and a home network. Furthermore the accounting system comprises the home and serving/foreign accounting collection modules (see the abstract of Rai). For example, when a user tries to use the infrastructure of the foreign network, the foreign network must charge the user. But the foreign network doesn’t have the basic information such as how much should I charge the visiting user like accounting information. So the foreign network has to get the account information from the user’s home network. Meanwhile, the user is roaming at the foreign network. The roaming leads to the definition of the second phrases, the mobility management.

From the examiner’s perspective, the *mobility management* is just an alternate term for roaming (see figure 3 of Rai). Such roaming information enables the accounting system to charge the roaming user for using foreign network.

With the growing of today’s communication technology, the meaning of *QoS* has been proliferated. Here, it could be how much bandwidth should the server provides to the ending user based on user’s profile in which how much the user is paid for the service and the environment where the user locates. In other words, whether the data sent is delay sensitive or delay tolerant.

Per claim 1, the appellant argues that Rai reference doesn’t teach that the accounting unit has a first entry to indicate a quality of service provided over the packet-based network, and a

secondary entry to indicate mobility management. It seems that the appellant tries to emphasize the sequential order of QoS and mobility management. Since the accounting unit is just accounting information, which is in a form of "01" within the data stream exchanging among the complex data network, whether receiving QoS information first or the mobility management has no substantial impact for the accounting system to collect those information to charge the user, and according to appellant's drawing, figure 3, the first entry of the accounting unit is service type (item 71) and the mobility management (item 74) is at fourth entry and QoS (item 78) is at eighth entry, it is not important to have those entries in a restricted sequence order.

In Rai's background of the invention, Rai teaches that his invention would involve services like faster access, virtual private networking, roaming, mobility, voice, quality of service, quality of service based accounting all need enhanced network infrastructure such that wireless service providers will be able to capture a larger share of the revenue system (see column 2 and lines 19-29). Rai further teaches:

In FIG. 14, the end system (mobile) initially solicits an advertisement and the foreign agent replies with an advertisement that provides the end system with information about the network to which the foreign agent belongs including a care-of-address of the foreign agent. Alternatively, this phase may be removed and all network advertisements may be done by a continuously emitted MAC layer beacon message. In this case, the network is assumed to be a foreign wireless service provider. Then, a user registration agent (in the end system) incorporates the information about the foreign agent (including the user name and other security credentials) and its network into a request and sends the request to the foreign agent. **The foreign agent, as a proxy registration agent, relays the request to the foreign registration server (i.e., the registration server for the foreign wireless service provider. Then, the foreign registration server, recognizing that it is not the home directory, accesses the foreign directory server with the FDD in the foreign wireless service provider to learn how to direct the registration request to the home registration server of the wireless service provider to which the end system belongs. The foreign registration server responds with the necessary forwarding information. Then, the foreign registration server encapsulates the end system's registration request in a Radius access request and relays the encapsulated request to the home registration server of the wireless service provider to which the end system belongs. The home registration server accesses the home directory**

server with the HDD of the home registration server to learn at least authentication information about the foreign service provider. Optionally, the home registration server accesses the subscriber's directory to learn detail subscriber service profile information (e.g., quality of service options subscribed to, etc.). When all parties are authenticated, the home registration server sends a start IWF request to the home IWF and PPP server. **The home IWF and PPP server starts the home accounting server and then sends a start IWF response to the home registration server.** The home registration server then sends a Radius access response to the foreign registration server. The foreign registration server then sends a start IWF request to the serving IWF server. The serving IWF server starts the serving accounting server and then sends a start IWF response to the foreign registration server. The foreign registration server sends a registration reply to the foreign agent, and the foreign agent relays the registration reply to the end system (column 18 and line 29-column 19 and line 7).

End system service configuration refers to the concept of configuring the network service for an end system based on the subscriber's service profile. The subscriber's service profile is stored in a subscriber directory. **The service profile contains information to enable the software to customize wireless data service on behalf of the subscriber.** This includes information to authenticate the end system, **allow the end system to roam** and set up connections to the end system's internet service provider. Preferably, **this information also includes other parameters, like, quality of service.** In addition to the subscriber directory, a home domain directory (HDD) and a foreign domain directory (FDD) are used for roaming and for authenticating the foreign and home registration servers to each other. The HDD stores information about the end system's home network and the FDD stores information about foreign networks that a subscriber may visit (column 19 and lines 51-67).

Therefore, Rai clearly teaches that an accounting unit or accounting information has an entry or parameter indicating a quality of service and another entry/parameter indicating mobility management.

The appellant argues that Rai reference doesn't teach collecting accounting units each including an entry identifying an amount of data communication. Rai teaches:

Accounting Input Packets. See Radius Acct-Input-Packets attribute. This attribute **indicates the number of packets received from the end system.** For a serving IWF, this attribute tracks the number of PPP frames input into the serving IWF from an end system. For a home IWF, this attribute tracks the number of PPP frames input into the home IWF from an end system.

Accounting Output Packets. See Radius Acct-Output-Packets attribute. This attribute **indicates the number of packets sent to the end system.** For a serving IWF, this attribute tracks the number of PPP frames output by the serving IWF to the end system. For a home IWF, this attribute tracks the number of PPP frames sent to the end system from the home IWF.(see column 30 and lines 35-49).

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Therefore, Rai clearly teaches that the accounting system tracks the number of packets/data the user is received and transmitted from and to the data network.

Per claim 8, appellant argues that column 29 of Rai reference doesn't teach an entry of an accounting unit that indicates a type of service that can be one of real-time communications and at least another type of service. However, based on the office action filed on 1/20/04, this limitation is addressed by column 16 and lines 4-20 instead of 29, therefore the argument is moot.

Per claim 19, appellant argues that Rai doesn't disclose an entry of an accounting unit to indicate erroneous termination of communication. Rai teaches:

The xtunnel protocol supports in-band control messages for tunnel management. These messages include echo request/response to test tunnel connectivity, disconnect request/response/notify to disconnect the tunnel and **error notify for error notifications**. These messages are sent over the tunneling media, for example, UDP/IP (column 22 and lines 33-39).

Network Accounting Terminate Cause. This attribute indicates a detailed reason for terminating a session. **This specific attribute is encoded as a vendor specific attribute and is only reported in a Radius Accounting attribute at the end of session.** The standard Radius attribute Acct-Terminate-Cause is also present. This attribute provides specific cause codes, not covered by the Acct-Terminate-Cause attribute.

Since foregoing answers has proved that any information provided within the accounting system is treated as entry/parameter of accounting information, and the error notification is part of the network accounting terminate cause report, Rai reference does teach or suggest such limitation.

Per claim 36, appellant argues that Rai doesn't teach of a traffic matrix that contains accounting information associated with a session having a given time duration. The so call traffic matrix is just some data information for track user's calling time. Rai teaches:

Accounting Session Time. See Radius Acct-Session-Time attribute. **This attribute indicates the amount of time that the user has been receiving service.** If sent by the serving IWF, this attribute tracks the amount of time that the user has been receiving service from that serving IWF. If sent by the home IWF, this attribute tracks the amount of time that the user has been receiving service from the home IWF. (column 30 and lines 27-35)

The accounting server delays processing of the raw accounting data until an end system has terminated its session. **When an end system terminates its session, the accounting server processes the raw accounting data that it has collected for the session and stores an accounting summary record in a SQL database.** The accounting summary record stored in the SQL data base points to an ASN.1 encoded file. This file contains detailed accounting information about the end system's session. **The data stored in the accounting server is then transferred by the billing data transfer agent to the customer's billing system.**

Alternatively, the wireless service provider may transfer the accounting data from the SQL database and/or the ASN.1 encoded file to the billing system via a tape. The data base scheme and the format of the ASN.1 encoded file are documented and made available to customers for this purpose. If the volume of processed accounting data stored in the accounting system exceeds a high water mark, the accounting server generates an NMS alarm. This alarm is cleared when the volume of data stored in the accounting server falls below a low water mark. The high and low water marks for generating and clearing the alarm are configurable. The accounting server also generates an NMS alarm if the age of the stored accounting data exceeds a configurable threshold. Conversely, the alarm is cleared, when the age of the accounting data falls below the threshold (column 31 and line 56-column 32 and line 13).

Therefore, Rai reference does teach or suggest the so call traffic matrix.

The appellant further argues that the obviousness rejection by the combination of Rai and Brown is defective because appellant believe that Rai teach neither a field for indicating a quality of service nor a mobility management. Since the foregoing responses show that Rai teach both fields, it is clear that the combination of Rai and Brown doesn't violate any of the requirements of a *prima-facie*-obviousness case.

For the above reasons, it is believed that the rejections should be sustained.

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Respectfully submitted,



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June 25, 2004

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